GEORGIA COMMERCIAL DRIVER'S LICENSE

SCHOOL BUS ENDORSEMENT SUPPLEMENTAL STUDY GUIDE

GADMVS 9/03

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FOREWARD:

This manual is intended to prepare you for the School Bus Endorsement Written Exam. In order to meet the requirements for a Commercial Driver's License to operate a school bus you may be required to successfully complete the following examinations:

1. General Knowledge Written Exam
2. Passenger Endorsement Written Exam
3. Air Brakes Written Exam (If the vehicle you plan to drive requires it)
4. School Bus Endorsement Written Exam

In addition to the written exams you **may** be required to successfully complete a Commercial License Skills Test. This test may consist of the following:

1. Pre-Trip Inspection
2. Basic Control Skills Test
3. On Road Driving Test

This supplement and the Georgia Commercial Driver's Manual are the materials that you will need to study in order to get a Commercial License with a School Bus Endorsement.

CHAPTER ONE: ADMINISTRATION OF PUPIL TRANSPORTATION

The Transportation Director (or other designated person)

The school bus driver should consider his school transportation director as his friend, adviser and immediate superior. The director should be informed of any local day-to-day problems that arise. In many larger schools, the day-to-day responsibilities of the transportation director are delegated to an assistant transportation director. In some counties, they are delegated to a transportation area coordinator or other supervisor.

Responsibilities and Duties of the Transportation Director

As the director is responsible for his buses, he is also responsible for his bus drivers. The authority of the director should not be questioned.

The transportation director has five major responsibilities:

1. Assigning drivers to buses;
2. Establishing bus routes, stops, and turn around points;
3. Assigning passengers to buses;
4. Ensuring that buses are in safe operating condition;
5. Appointing monitors as needed.

The transportation director has authority to discharge a school bus driver:

1. For lack of interest in safe transportation;
2. For infractions of bus driver regulations;
3. For disorderly conduct;
4. When required for the best interest of the school.

Discipline of Passengers

As a disciplinary measure, the school principal or the transportation director may suspend a pupil from riding a school bus for any reason, including but not limited to the following:

1. Delaying the bus schedule;
2. Fighting, smoking, using profanity or refusing to obey instructions of school authorities or a bus driver while riding on a school bus;
3. Tampering with the bus;
4. Refusing to meet the bus at designated stops;
5. Unauthorized leaving of the bus when enroute;
6. Playing, throwing trash, paper, or other objects, or otherwise distracting the driver's attention while the bus is in operation; and/or
7. Failure to observe established safety rules and regulations.

Routing School Buses

Establishing the routes over which school buses operate is primarily the responsibility of the transportation director. The bus driver must adhere to the established route and refrain from taking the bus off the regular route without the permission of the transportation director. The removal of a bus from its designated route by the driver without the permission of the transportation director may result in serious consequences, including the removal of the driver and possible legal action in a civil suit in case of an accident.

The Passengers

Certain rules are designed for the discipline and safety of the occupants of a school bus. The driver should see that each student knows these rules and that they are followed, calling upon the aid and authority of the transportation director whenever necessary. The driver should, of course, set a good example himself at all times. In meeting the bus, the passengers should:

1. Be on time;
2. Stand on the side of the highway and in no way interfere with traffic;
3. Wait to cross the road until the bus has arrived and stopped with the stop-sign out and the door of the bus open; and
4. Wait their turn while getting on the bus.

On the bus, passengers must observe regular classroom conduct (except for ordinary conversation) and any other rules established by the school system. The following rules also should be observed:

1.Take assigned seats; never stand if a seat is available and never in any case in front of the standee line;
2. Do not talk to or otherwise disturb the driver;
3. Do not extend hands or arms out of the window;
4. Remain seated while the bus is moving;
5. Keep the bus clean and sanitary;
6. Refrain from the use of tobacco and profane or indecent language;
7. Never damage or deface the bus; and
8. Do not brings dangerous or prohibited items on the bus, such as guns, knives, gasoline, car batteries, animals, drink bottles, and projects too large to be held on the lap.

It is the driver's responsibility to transport his passengers safely. **No passenger who misbehaves should ever be put off and made to walk.** Instead, cases of misconduct should be reported to the transportation director. If the nature of the misconduct is so severe as to make continuing the route unsafe, the transportation director should be summoned to the bus to handle it.

TEST YOUR KNOWLEDGE

1. What are the transportation director's responsibilities in school bus transportation?
2. What are the responsibilities of passengers?

Multiple Choice Questions

1.Which of the following items are prohibited on a school bus?
a) guns;
b) gasoline;
c) large class projects;
d) all of the above.

2. Who has the responsibility of setting up passenger stops?
a) the driver;
b) the parents;
c) the Driver Education Specialist;
d) the transportation director (or designated person).

CHAPTER TWO: SAFE DRIVING PROCEDURES

A school bus is much longer, wider and heavier than a car. Driving the bus requires more preparation, thought and care. The procedures described in this chapter are intended to promote the safety and comfort of school bus passengers and to ensure that they arrive at school each day ready to learn.

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Riding in the bus with you are several dozen children whose lives are in your hands and who depend on your good judgment.

Care and Maintenance of the School Bus

The life and reliability of a school bus depends on how well the driver treats the bus. Daily inspections and expert handling can prolong the life of the bus and increase its service quality. Never attempt to make repairs to the school bus, but always be alert to the bus' mechanical condition and report all problems to the transportation director

The school district transportation director is ultimately responsible for maintaining the school bus in a safe operating condition. However, each bus driver is responsible for never driving a school bus that has a known mechanical defect. Always respect the judgment and suggestions of mechanics about school bus equipment maintenance and care.

School Bus Inspections: Why Inspect?

Safety

The most important and obvious reason to inspect a school bus is to ensure safety. Inspecting the bus helps the driver to know that it is safe to drive.

Legal Requirements

Federal and state laws and school district regulations require school bus inspections. School buses are subject to inspection at any time by state and local agencies.

Types of Inspections

Pre-Trip Inspection

Perform a pre-trip inspection before each trip to find problems that could cause a crash or breakdown.

For safety during the trip you should:

1. Watch gauges for signs of trouble.
2. Use your senses to check for potential problems (look, listen, smell, and touch).
3. Check critical items between trips, such as:
    - Brakes (The most important item to check.);
    - Lights; and
    - Cargo security (for activity buses).

Post-Trip Inspection

Perform a post-trip inspection at the end of each trip, day or working shift. The inspection might require submitting a vehicle condition report noting any problems you have found. The vehicle condition report helps to alert the transportation director and mechanics to problems, which need repair.

Inspection Procedure

You should carry out the pre-trip inspection in the same manner every time so you will learn each step and be less likely to forget something. A memory aid can be used when you take your CDL skills test(This is found on page 2-6 in the CDL Manual). When you take your test you must explain to the examiner what parts of the vehicle you are inspecting. Describe the possible defects you are looking for. It will help you pass the test if you practice this with a friend beforehand. You will be marked down for important items on the bus that you failed to inspect. The following inspection procedure can be a useful guide.

(Before proceeding with the inspection, make sure the parking brake is set and/or that the wheels are chocked.)

Overview

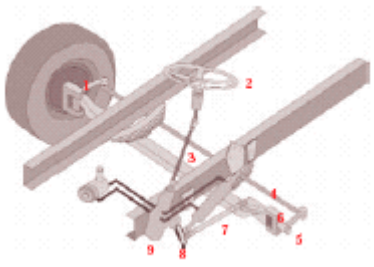
Notice the general condition. Note any damage or if the bus is leaning to one side. Look underneath for fresh puddles of oil, coolant, grease, or leaking fuel. Observe the surrounding area for hazards to moving the bus (people, other vehicles, objects, low hanging wires and limbs, etc)

Front of Vehicle

The **wording and lettering** should be clean.
The **windshield and headlights** should be clean and unbroken.
The **turn signals, clearance lights, stop lights, and warning lights** should be clean, unbroken, and of the proper color.
The **walking control arm and stop sign** should be clean, unbroken, and secure.
All **mirrors** should be clean, unbroken and secure.

Engine Compartment

The **oil level** should be above the "add" mark.
The **coolant** should be at the proper level in the sight glass or in the radiator itself. **Never remove a radiator cap when the engine is hot.** Check the condition of the hoses to see that they are secure, not damaged, or leaking.
The **water pump** should not be leaking. Belts should not be cracked, frayed, or have more than 1/2 inch to ¾ inch looseness.
The **alternator** should be securely mounted, its wires should not be loose or cracked, and its belts should not be cracked, frayed, or have more than 1/2 inch to 3/4 inch looseness.
The **power steering fluid** should be at the proper level or above the add mark. There should not be any leaks in the reservoir or hoses.
The **steering box** should be mounted securely and not leaking.
The **steering linkage** should not be worn or damaged. There should be no loose or missing nuts, bolts, or cotter keys.
The **air compressor** should be mounted securely, not leaking, and the air compressor belt should not be cracked, frayed, or have more than 1/2 inch to 3/4 inch looseness.



Right Front Suspension, Brakes, and Wheel

Right Front Suspension

The **springs** should not be loose, broken, displaced, or missing.
The **spring mounts** should be secure with no cracks and should not have any missing or loose bolts.
The **shock absorber** should be secure, not broken, and should not have any leaks.

Right Front Brakes

The **air hose** should be securely mounted, not damaged, and not leaking.
The **air chamber** should be securely mounted, not damaged, and not leaking.
Slack adjuster - The push rod should not come out more than one inch when pulled by hand. The angle between the push rod and adjuster arm should be a little over 90 degrees when the brakes are released, and not less than 90 degrees when the brakes are applied. There should not be any broken, loose or missing parts.
The **brake drum** should not have any cracks, dents, or holes and should not have any missing or loose bolts.

Right Front Wheel

The **tire** should have at least 4/32 inch tread depth and should not be a recapped or regrooved tire.
The tire should be worn evenly without any cuts or damage to the tread or walls. The air pressure should be proper and the valve stems should not be damaged or missing.
The **rim** should not be bent, damaged, or have any welding repairs.
No **lug** nuts should be missing or loose. There should not be any rust spots that indicate a loose rim.
The **hub oil seal** should not be loose, damaged, or leaking.

Right Side of Bus

The **wording and lettering** should be clean.
The **passenger door** should be clean and unbroken.
The **windows** should be clean and unbroken.
The **clearance lights and reflectors** should be clean, unbroken, and of the proper color.

Under the Bus

The **fuel tank** should be secure with no leaks. The fuel cap should be secure.
The **frame** should have no cracks or damage in either the long or cross members. All nuts and bolts attached to the frame should be secure.

Exhaust - The muffler and all pipes should be securely mounted, with no holes or severe dents. The tail pipe should extend completely out the back of the bus. No parts should be touching wires, fuel hoses or air hoses.
The **drive shaft** should not be bent or damaged. The universal joints should not be loose and the safety hanger should be in place.

Right Rear Suspension, Brakes, and Wheel

Right Rear Suspension

The **springs** should not be loose, broken, displaced, or missing.
The **spring mounts** should be secure with no cracks, missing or loose bolts.
The **shock absorber** should be secure, not broken, and should not have any leaks.

Right Rear Brakes

The **air hose** should be securely mounted, not damaged, and not leaking.
The **air chamber** should be securely mounted, not damaged, and not leaking.
Slack adjuster - The push rod should not come out more than one inch when pulled by hand. The angle between the push rod and adjuster arm should be a little over 90 degrees when the brakes are released and not less than 90 degrees when the brakes are applied. There should not be any broken, loose or missing parts.
The **brake drum** should not have any cracks, dents, or holes and should not have any missing or loose bolts.

Right Rear Wheel

The **tires** should have at least 2/32 inch tread depth. Rear tires may be a recapped or regrooved tire, but a retread must not be separating from the tire. The tires should be worn evenly without any cuts or damage to the tread or walls. The air pressure should be proper and the valve caps and stems should not be damaged or missing. The tires should be the same type (radial or bias-ply).

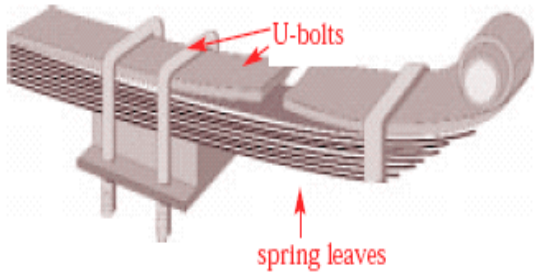
The **rim** should not be bent, damaged, or have any welding repairs.
No **lug nuts** should be missing or loose. There should not be any rust spots that indicate a loose rim.
The **axle seal** should not be loose, damaged, or leaking.
The **spacer** should not be damaged and should be installed properly so that the tires do not touch each other.

Rear of Bus

The **wording and lettering** should be clean.
The **windows** should be clean and unbroken.
The **turn signals, brake lights, stop lights, warning lights, and reverse lights** should be clean, unbroken, and of the proper color.
The **door** should open freely from the outside.
The **license plate** should be clean and secure.

Left Rear Suspension, Brake, and Wheel

The **left rear suspension (springs, spring mounts, shock absorber), brakes, (hose, chamber, slack adjuster, drum), and wheel (tires, rim, lugs, axle seal, spacer)** should meet the same requirements as the right side.



Safety defect: broken leaf in leaf spring

Left Side of Bus

The **left side of the bus (wording and lettering, windows, and clearance lights and reflectors)** should meet the same requirements as the right side.

Left Front Suspension, Brakes, and Wheel

The **left front suspension (springs, spring mounts, shock absorber), brakes (hose, chamber, slack adjuster, drum), and wheel (tire, rim, lugs, hub oil seal)** should meet the same requirements as the right side.

Passenger Entry

The **steps** should not be damaged and have good tread which is secure.
The **handrail** should be present, secure, and undamaged.
The **door** should be clean, unbroken, and secure.

Emergency Equipment

The **first-aid kit** must be present **(required for a school bus)**, secure, and contain the required items.

The **fire extinguisher** must be present **(required for a school bus)**, charged, and the proper type (for electrical and liquid-fuel fires).

Passenger Seating, Emergency Exits, and Windows

Check the **seats** for damage. The seat bottoms should be securely fastened to the frames, and the frames should be securely fastened to the floor.

Check to see that all **emergency exits** are unlocked, are not blocked, and open and close properly. Make sure that their warning buzzers operate when they are opened.

The **windows, windshield, and all other glass** should be clean and free of any illegal stickers or anything that block the driver's view.

Pre-Driving Adjustments and Starting Engine

School buses have many makes and models of engines. You must learn the specific procedure for starting a particular school bus during the behind-the-wheel training. However, for most school buses, the following procedure should be used for **pre-driving adjustments and starting the engine:**
Adjust the seat, adjust all mirrors, all drivers must fasten their safety belt; Check the parking brake, depress the brake pedal; Shift to neutral; Start engine.

All Warning buzzers and Lights should be off before starting a trip.

Check Gauges

Listen for any unusual engine noises. Check the **oil pressure gauge** to see that it builds normally and that no warning lights remain on. The gauge must come up to the first mark within a few seconds.
The **temperature gauge** should not register "hot". No warning light should be on.
The **fuel gauge** should show that there is enough fuel to complete the trip.
The **battery gauge (ammeter or voltmeter)** should indicate that the battery is being charged.

Check Inside Controls

The **horn** should be audible for at least 200 feet.
The **steering wheel** should have less than two inches of play on a power steering bus.
Interior lights should be tested for illumination.
Heaters and defroster - All fans should work on both the low and high settings.
The **wipers** should work on both the low and high settings. The blades should not be damaged and the wiper arms should hold the wipers against the windshield with the proper tension.

Check Outside Controls

Check for proper functioning of all outside controls: **Headlights** (high and low beam), **high beam indicator, clearance lights, tail lights, brake lights, reverse lights, right and left signals, right and left signal indicator lights, hazard lights, hazard light indicators, warning lights, warning lights indicator, stop lights, stop lights indicator, stop sign** (should come out properly), **stop sign lights, walking control arm** (should come out when the stop sign comes out), **door latch and switch** (should turn the stop lights off and latch properly when the door is shut).

Hydraulic Brake Checks

Hydraulic pressure problems - Pump the brake pedal three times. Press the brake pedal firmly and hold for five seconds. The brake pedal should not move. If it moves, there might be a leaking brake line or other problem, and you must have the brakes repaired before driving the bus.

Brake booster - Many brake systems have an electric brake booster in case of loss of brakes caused by engine failure. Check to see that the brake booster light and/or buzzer work properly.

Air Brake Checks

Check for **leaks, air warning, and button pop-out: this is commonly known as theLAB test. (Failure to do the LAB test properly during the vehicle inspection will constitute a failure of the vehicle inspection test.)** Let air pressure build to the governed cutout pressure- 120 pounds per square inch(psi).

Turn off the engine
Leaks - Check to see that the air pressure is **120 psi**. Press the brake pedal hard and hold for one minute. Listen for leak and check to see that the air pressure does not drop more than three psi.
Air warning - Turn ignition key to "on". Reduce the air pressure to **60 psi**. The warning light and buzzer should come on before the air pressure drops below 60 psi. Turn ignition key "off".
Button pop-out – Check to insure the pop-out works.

Parking Brake and Service Brake Checks

Parking brake - Check to see that the air pressure is in the range of **90-120 psi**. Set the parking brake, shift the transmission to drive, and then release the brake pedal. The vehicle should not move (with the engine at a fast idle).

Service brake - Check to see that the air pressure is in the range of **90 to 120 psi**. Move the bus forward about five miles per hour. Press the brake pedal firmly. **Note any problems with the brakes such as unusual noise, unusual feel, pulling to one side, or delayed stopping.**

Note: Activity bus passengers may bring along baggage if it is safely secured, and if the driver and passengers are protected from shifting and falling packages and are able to move freely and easily through the bus. Each passenger must have normal access to all exits.

The pre-trip inspection will be taught in the behind the-wheel phase of your training.

If you find anything unsafe during the pre-trip inspection, get it fixed! Federal and state laws, as well as school bus rules, forbid operating an unsafe vehicle.

TEST YOUR KNOWLEDGE

1. What things should you check during a pre-trip?
2. Name some key components of the steering system.
3. Name some potential suspension system defects.
4. Name two pieces of emergency equipment required to be aboard the school bus.
5. What is the minimum tread depth for rear tires?
6. Name some components you should check at the front of the bus during the pre–trip, walk around inspection.
7. Why should wheel–bearing seals be checked?
8. How do you test air brakes for leaks?
9. Are you permitted to use a memory aid for the vehicle inspection portion of the CDL skills test?

Multiple Choice Questions
1. What is the minimum tread depth for front tires?
a) 3/42 of an inch;
b) 3/20 of an inch;
c) 4/32 of an inch;
d) 4/30 of an inch.

2. What is the most important reason for doing a vehicle inspection?
a) to give the mechanic something to do;
b) to assist the principal with his report;
c) to increase monthly pay checks;
d) for safety/ required by Federal and state laws.

3. L-A-B is used to describe:
a) the stop light system;
b) accident prevention formula;
c) adverse weather conditions;
d) Air Brake Test.

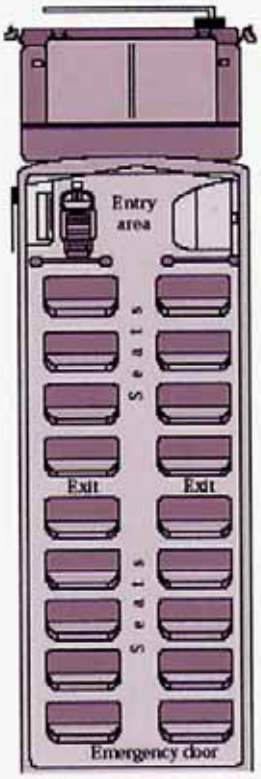
Inspection Outline

1. **Overview:** damage, possible problems, leaks under engine.

2. **Front:** wording, windshield, headlights, clearance lights, stop lights, warning light signals, walking control arm, stop sign, mirrors.

3. **Under Hood:** oil, coolant, water pump, hoses, alternator, power steering fluid, steering box, steering linkage, air compressor (master cylinder on hydraulic systems)

12. Left Front Suspension: springs, spring mounts, shock absorber (same as right side).
Left Front Brakes: hose, chamber, slack adjuster, drum (same as right side).
Left Front Wheel: tire, rim lugs, axle seal, spacer (same as right side).
11. Left Side of Bus: wording, windows, clearance lights, reflectors (same as right side).
10. Left Rear Suspension: springs, spring mounts, shock absorber (same as right side).
Left Rear Brakes: hose, chamber, slack adjuster, drum (same as right side).
Left Rear Wheel: tire, rim, lugs, axle seal, spacer (same as right side).



4. Right Front Suspension: springs, spring mounts, shock absorber.
Right Front Brakes: hose, chamber, slack adjuster, drum.
Right Front Wheel: tire, rim, lugs, hub oil seal.
5. Right Side of Bus: door, wording, windows, clearance lights, reflectors.
6. Fuel Area: fuel cap, fuel tank, leaks.
7. Under Bus: frame, exhaust, drive shaft.
8. Right Rear Suspension: springs, spring mounts, shock absorber.
Right Rear Brakes: hose, chamber, slack adjuster, drum.
Right Rear Wheel: tires, rim, lugs, axle seal, spacer.

9. Rear of Bus: wording, windows, clearance lights, stop lights, warning lights, brake lights, signals, reverse lights, door.

Interior of Bus

1. Passenger Entry: steps, handrails, door.
2. Emergency Equipment: fire extinguisher, first aid kit
3. Passenger Seating, Emergency Exit and Windows
4. Pre-Driving Adjustments: seats, mirrors, seat belt.
5. Start Engine
6. Check Gauges: oil, temperature, fuel, battery, air.

(On hydraulic systems, check for hydraulic pressure problems and check booster motor, if applicable).

7. Check Inside Controls: Horn, play in wheel, interior lights, heater and defrosters, wipers.
8. Check Outside Controls: headlights, clearance lights tail lights, brake lights, reverse lights, right signals, left signals, hazard lights, warning lights, stop lights, stop sign, walking control arm, door switch, all indicator lights.
9. Brake Checks: leaks, air warning, button pop-out, parking brake, service brake.

Moving the Bus

Before moving the bus, you should first turn on any necessary electrical switches such as headlights, defrosters, turn signals, etc. Then to move the bus, follow this procedure:

- Depress the brake pedal firmly;
- Release the parking brake;
- Select the proper gear;
- Check traffic;
- Re-check traffic as the vehicle begins to move.

Steering and Stopping the Bus

If you are an accomplished, smooth bus driver you will be safe and will have the respect of your passengers.

Steer smoothly, turning the wheel with a "hand–over–hand" motion. Always keep both hands on the steering wheel at the "ten–o'clock" and "two–o'clock" positions. Driving with both hands on the steering wheel is much safer than driving with only one hand. If you are forced to steer quickly or with a jerking motion, you are traveling too fast for the maneuver.

Always use your right foot for normal braking. A school bus is much heavier than other smaller vehicles, and it requires the driver to begin braking earlier in order to stop smoothly. For a smooth stop, "feather" the brake by slightly reducing pressure on the brake pedal at the instance just before the bus stops rolling. The "feathering" action will release a small amount of brake pressure just before the stop is completed, making a smoother stop. Except in an emergency or to prevent a collision, you should never stop suddenly.

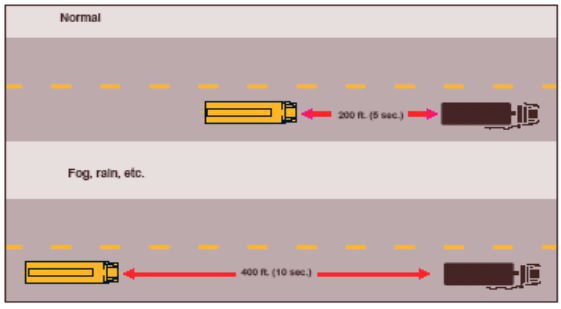
On an uphill grade to keep from rolling backward, it is permissible to use your left foot to press the brake while you begin to accelerate with your right foot. As the bus starts to move forward, gradually release the brake with your left foot until the bus no longer roll backwards and continue to move ahead.

Safe Following Distance For the School Bus

You must always maintain a safe following distance between the school bus and a vehicle traveling ahead. This following distance should be long enough for you to be able to safely and smoothly stop the bus under any potential condition. Constant practice to accurately estimate following distance can keep you prepared for most circumstances. The most important rule of maintaining a safe following distance is to keep at least **four seconds** behind the vehicle in front of you when weather and road conditions are normal and at least **ten seconds** behind the vehicle ahead when conditions are hazardous. For city driving, following distances must sometimes be changed to fit smoothly with the flow of traffic.

Motor Vehicle law provides that the driver of a motor vehicle shall not follow another vehicle more closely than is reasonable and prudent, with regard for the safety of others.

Never follow more than one school bus moving through a city block at the same time. When following two school buses, maintain at least one city block's distance between your bus and the pair ahead. In the afternoon, proper bus dispatching from the school should eliminate most instances of school buses following each other too closely.



Following distance may vary according to conditions.

Stopping Distance

There are four components of total stopping distance:
Perception distance
Reaction distance
Brake lag distance (for vehicles with air brakes)
+ Braking distance

_____
= Total stopping distance

Perception Distance
This is the distance your vehicle travels between the moment when your eyes physically see a driving hazard and the instant when your brain recognizes the hazard (perception time). The average perception time for an alert driver is about 3/4 second. Perception distance varies directly with the vehicle's speed of travel. A vehicle moving at 55 miles per hour travels 60 feet in 3/4 second. Therefore the average perception distance for an alert driver moving at 55 miles per hour is 60 feet.

Reaction Distance
This is the distance your vehicle travels during the period of time when your brain recognizes the driving hazard and the moment when you press the brake pedal. The average, alert driver has a reaction time of 3/4 second, accounting for an additional 60 feet of travel for the vehicle moving at 55 miles per hour.

Brake Lag Distance
For vehicles with air brakes, there is approximately a 1/2 second delay in brake response time from the moment when you press the brake pedal to the point when the brakes engage. This delay is caused by the amount of time required for the air to flow through the brake lines. During the average 1/2 second brake lag delay, the vehicle moving at 55 miles per hour will travel an additional 32 feet.

Braking Distance
This is the distance it takes to stop your vehicle after you have pressed the brake pedal to engage the brakes. With good brakes and in normal driving conditions (dry pavement, level roadway, etc.), a heavy vehicle moving at 55 miles per hour, such as a school activity bus, usually will require at least 170 feet of braking distance and a period of 4 1/2 seconds to stop.

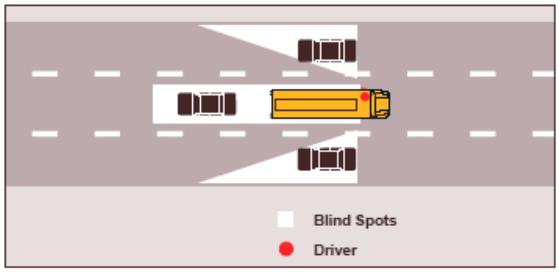
Total Stopping Distance
The total stopping distance for a vehicle is the sum of the perception, reaction, brake lag* and braking distances. A heavy vehicle moving at 55 miles per hour will need at least six seconds to stop and a minimum total stopping distance of 322 feet, about the length of a football field.

•60 ft. perception distance
•60 ft. reaction distance
•32 ft. brake lag distance*
•170 ft. braking distance
•322 ft. total stopping distance
Included if vehicle has air brakes

The Effect of Speed on Stopping Distance
Moving at a higher speed greatly increases a vehicle's required stopping distance. When the speed of travel is doubled, the corresponding braking distance increases by four times. This formula also applies to the destructive power of speed during a collision: When a vehicle travels twice as fast, it increases its destructive power in a crash by four times. By slowing down, you can stop a vehicle more quickly and reduce the risk of a collision.

The Effect of Vehicle Weight on Stopping Distance
A heavy vehicle requires more braking power to stop than a lighter one because the heavier vehicle creates more friction and heat for the brakes to absorb. The brakes, tires, springs and shock absorbers for heavy vehicles are designed to work best when the vehicle is fully loaded. For example, an empty truck can require a greater stopping distance because it weighs less than a fully loaded truck and consequently has less traction with the road. It can brake poorly by bouncing on the road and locking its wheels. School buses, however, do not normally have this problem.

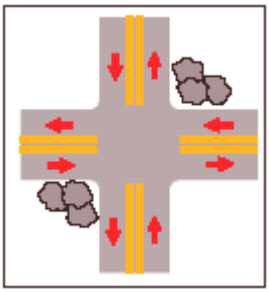
Changing Lanes
When you drive a school bus in an urban/suburban area you must frequently change lanes. Changing lanes with a school bus requires greater concentration and more careful use of mirrors than changing lanes with a car. To change lanes with a school bus, you should signal early, thoroughly check mirrors and blind spots and gradually move into the new lane. When you have positioned the bus in the new lane, remember to disengage the turning signal.



The three cars in this illustration cannot be seen by the bus driver.

Approaching an Intersection
Intersections occur at points where roads and streets join, meet or cross. They can be different sizes and shapes depending on the angle(s) by which the roadways meet. Intersections are the most dangerous

places on a roadway; more collisions occur at intersections than at any other place. Be prepared to stop each time you approach an intersection.



Right of Way

There are two types of intersections, regulated and unregulated. Regulated intersections have traffic control devices, such as a signal or sign. Unregulated intersections have no traffic signals or signs. When approaching an unregulated intersection, you are bound by law to reduce speed, check traffic to see that you can proceed and continue to move only when you have right–of–way. If another vehicle is already in or very near the intersection, you must yield right–of–way to that vehicle; when two vehicles arrive at an unregulated intersection at the same time, the vehicle on the left always yields right–of–way to the vehicle on the right. Note that the law only names the vehicle that must yield right–of–way; it never states that any vehicle expressly has the right to proceed. Right-of-way laws are designed to prevent collisions by prescribing which vehicle must move last.

Yield Signs- Regulated Intersection

Because of the restricted visibility, slow acceleration and length of a school bus, you must use extreme caution as you approach a yield sign. Approach the intersection where you must yield at a speed that is reasonable for the existing conditions but slow enough to allow you to stop the bus and yield right–of–way to another vehicle in the intersection or to avoid a hazard.

Stop Signs- Regulated Intersection

You must completely stop at every intersection where there is a stop sign for your lane of traffic. Resume travel only when you can move the bus without interfering with the movement of another vehicle. Before proceeding you should look in all directions at least twice to check for approaching traffic. If the intersection is clear, proceed to move ahead or turn with caution.

Traffic Signals-Regulated Intersection

Approach each traffic signal (traffic light) expecting that it could change color at any moment. Always obey the color of the traffic signal:

- **Red light:** Stop completely and wait for the green light before proceeding. School buses should not turn "right on red".
- **Yellow light:** Prepare to stop for the red light that will follow.
- **Green light:** Check to be sure that approaching traffic is stopped and proceed with caution.
- **Flashing yellow light:** Slowly proceed with caution.
- **Flashing red light:** Stop completely, check for approaching traffic and proceed with caution when it’s safe to move (same as stop sign).

Traffic Officer-Regulated Intersection

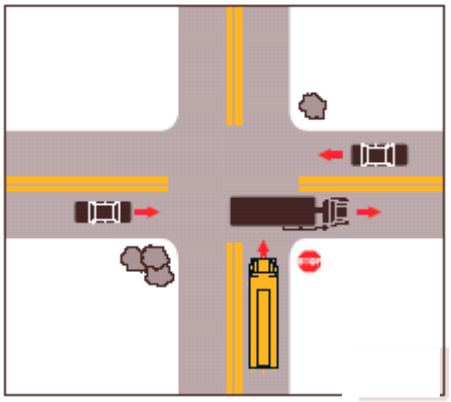
A uniformed traffic officer always has authority above regular traffic signs and signals. You must follow the officer’s instructions regardless of the regular traffic devices. When an officer is directing traffic, there is usually a specific problem or hazard— there could be a collision ahead, malfunctioning traffic signal or missing sign. Always obey the officer's instructions, even if the regular traffic devices appear to be functioning properly.

Private Drive

When leaving a driveway, you must always yield right–of–way to the approaching vehicles on the roadway where you are entering. Check for approaching traffic and proceed with caution when it’s safe to move (same as stop sign).

Crossing Main Highways

Use extreme caution while crossing or entering a major highway. When moving from a complete stop, a school bus normally requires at least six seconds to cross and clear an average two-lane highway. Multi–lane highways, especially divided highways, require even more time. An automobile traveling at 55 miles per hour can move 485 feet in six seconds— before you move the bus onto a highway be certain that you have enough time to safely clear the intersection. Always **check and recheck for approaching traffic** before entering or crossing any road. Look first to the left, where the hazard of approaching traffic is closer.

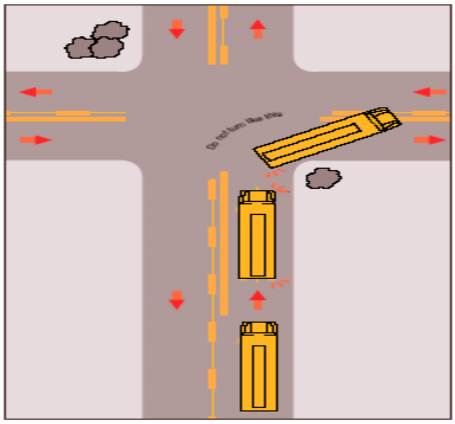


Bushes, signs and other vehicles can block a driver's view

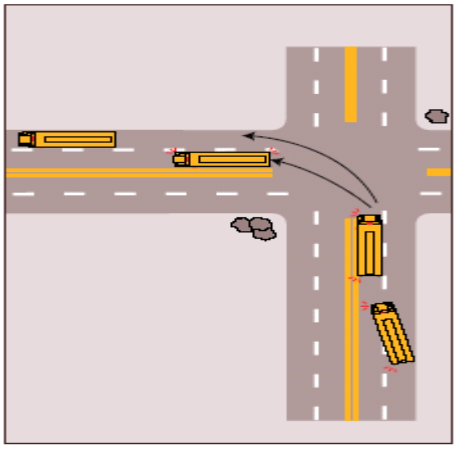
While driving the bus you must never take a risk. You should be a courteous driver and remember that the law requires you and all drivers to yield right–of–way to pedestrians and vehicles on narrow bridges, on the roadway, at intersections, and in any hazardous situation.

Turning the Bus

Many accidents result from improper and unsafe turns. Errors such as moving to fast; turning too soon; striking an object on the right or left; turning from the wrong lane and failing to yield right–of–way are common contributors to collisions. Many of these mistakes can be prevented by following safe driving habits such as knowing in advance where you are going and getting into the proper lane well in advance of the turn, turning carefully and deliberately using handover-hand steering, and always being prepared to stop or yield the right of way. Be sure to turn into a lane that is both lawfully available and the one that will benefit you the most down the road. In addition to these preventive measures, the following standard procedure should be used in making a safe turn:



A safe and proper right turn.



A safe and proper left turn.

Get in the proper lane well in advance of the turn!

1. Check traffic (to the front, rear, and sides).
2. Engage the turn signal 300 feet in advance.
3. Slow gradually to 10 mph at least 50 feet before the turn.
4. Check traffic (to the front, rear, and sides).
5. Check clearance while turning.
6. Straighten the bus and check traffic (to the front, rear, and sides).

TEST YOUR KNOWLEDGE

1. What are the four components of total stopping distance?
2. True or false: If you swing the bus far to the left before turning right, another driver may try to pass you on the right.
3. What is brake lag?
4. True or false: Doubling your speed also doubles your vehicle's required stopping distance.
5. What is the procedure for making a turn and changing lanes?

Multiple Choice Questions

1. What items make up total stopping distance?
a) good brakes;
b) strong foot, good tires;
c) perception, reaction, brake lag ,and braking distance;
d) perception, brake lag, and following.

2. You should engage your signal at least:
a) 500 feet;
b) 200 feet;
c) 300 feet;
d) 400 feet.

3. What is the definition for reaction distance?
a) the distance a driver travels before he realizes there is a discipline problem;
b) the distance he travels after applying the brakes;
c) the distance traveled while moving his foot from accelerator to brake pedal;
d) braking distance minus perception distance.

Backing

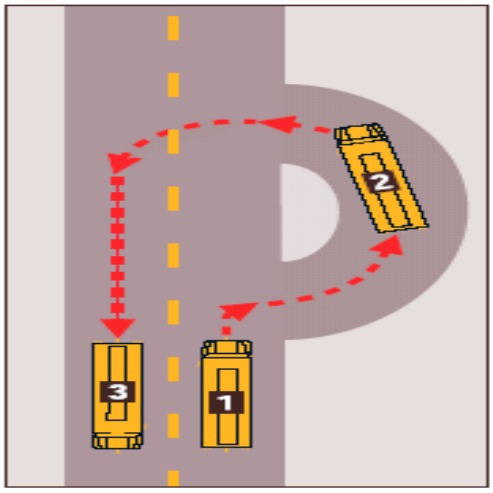
Never back the school bus unless it is absolutely necessary. But if you must, remember that there are several things you can do to insure safety. Approaching traffic may not know that you are backing, so using the hazard lights (four-way flashers) and blowing the horn will help alert them to your maneuver. Since there are blind spots that your mirrors cannot show you, appoint a responsible person to be a monitor at the rear of the bus to help you see what is behind the bus. Verbally communicate with the monitor before you begin and while backing. Check traffic to the front, rear, and sides both before and throughout the maneuver, using mirrors as needed. Many collisions happen because a driver is backing too fast. Therefore, always back at a slow, idle speed without using the accelerator and be prepared to stop for problems or improper position. Repositioning the bus may sometimes be necessary. Using these safe driving practices, the following procedures will help insure safety while backing:

1. Check traffic (front, rear, and sides).
2. Engage hazard lights (four-way flashers).
3. Communicate with monitor.
4. Blow horn.
5. Back slowly, with no acceleration.
6. Continue to check traffic and with monitor.

Never back the bus to pick up passengers!

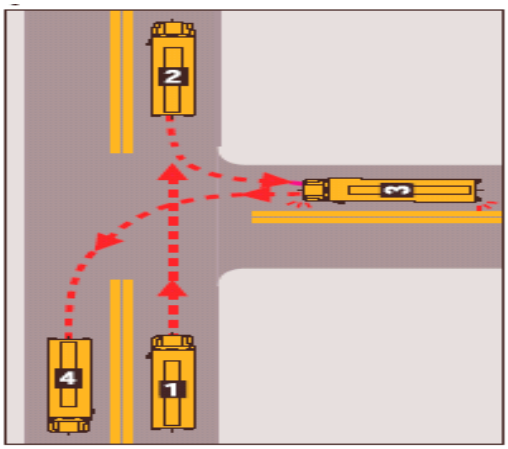
Turning the Bus Around

Consult with the transportation director to select the safest place to turn the school bus around. A safe place for turning around should have at least 500 feet of unobstructed visibility in both directions and plenty of clearance for all sides of the bus. Using an unsafe place for turning around could eventually lead to a collision. Report any unsafe conditions at a turnaround point to the transportation director. **There are three methods of turning the bus around: the forward turn–around, right side–road turn–around and left side–road turn–around.** Each maneuver is described, listed in preferential order for safety:



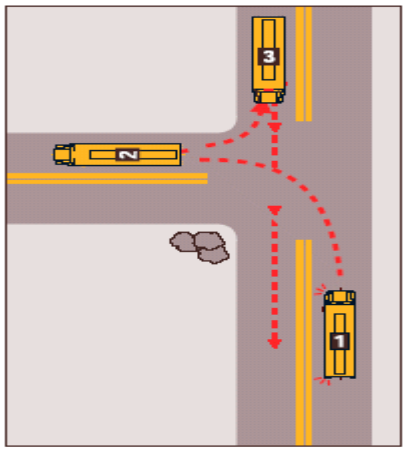
Forward turn (no backing).

1. **Forward turn-around:** Because backing the bus is an extremely dangerous procedure, the safest way to turn around is to avoid backing and use a forward turn-around instead. To perform the forward turn-around, you select an adequately sized, safe area away from the road, such as a parking lot, where you can slowly move the bus forward in a wide circle to turn around.



Side road (right).

2. **Right side-road turn-around:** The second safest method for turning the bus around is to use a side road on the driver's right side. To perform the right side-road turn-around, select a safe, intersecting side road on the right. Drive far enough past the side road to clearly see it behind and to the right of the bus. To turn around, cautiously back the bus onto the side road and then turn into the correct lane of travel.



Side road (left).

3. **Left side-road turn-around:** Sometimes you might have no choice for turning the bus around except to use a side road on the left. To perform the left side-road turn-around, you should make a standard left turn onto a safe, intersecting side road, and then cautiously back onto the main road to turn the bus around. If you must perform this maneuver, move cautiously: Backing onto a main road is very dangerous.

For safety, remember these important rules for turning the school bus around:

- Turn around only at places designated by the transportation director.
- Always keep the bus in the proper lane of travel.
- Observe all the precautions for backing.
- **If you must turn the bus around by backing at a passenger stop, make sure all the passengers are on the bus while you are backing. If you are loading passengers at the turn-around point, load them onto the bus before you back. If you are unloading passengers at the turn-around point, back the bus before they are unloaded.**
- On a divided highway, the bus may not be able to make a U-turn from one inside lane to the opposite inside lane. Because divided highways are often heavily traveled, a U-turn at a median crossover point is extremely hazardous.
- Inform the school principal and transportation director of any turn around problems you might notice on your route.

Speed Limits for School Buses

(Georgia School Bus Speed Limit Laws)
40-6-160.

(a) Except as otherwise provided in subsection (b) of this Code section, it shall be unlawful to operate:

(1) A school bus transporting school children to and from school or to and from school activities at a speed greater than **40** miles per hour on a public road other than one which is a part of The Dwight D. Eisenhower System of Interstate and Defense Highways; or

(2) A school bus transporting school children to and from school or to and from school activities on a public road which is a part of The Dwight D. Eisenhower System of Interstate and Defense Highways at a speed greater than **55** miles per hour.

(b) When a school bus is transporting school children to or from an event or school activity or an express bus transporting students from one school to another school and is not loading or unloading children during such transportation, the speed limit shall be **55** miles per hour on other public roads as well as on those public roads which are a part of The Dwight D. Eisenhower System of Interstate and Defense Highways.

Governor

The speed–control governor is installed for the safety of everyone who rides the bus. Never tamper with the speed governor. If it is not working properly, immediately report the malfunction to the school Transportation Director.

Tachograph

A tachograph or some other electronic device sometimes is installed on a school bus to survey and report driving routines. These devices can record the time of day for each bus stop and start, the duration of each stop, the amount of driving time between stops and the speed of travel.

Passenger Stops

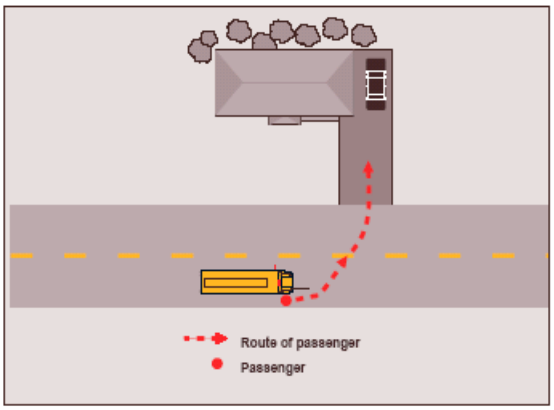
Georgia accident statistic reports show that some of the most serious school bus collisions occur while passengers are loading and unloading. Always use great care any time passengers are outside the bus. After unloading passengers, check to be sure they have moved a safe distance from the bus before you

proceed ahead. For passengers who must cross to the opposite side of the roadway from the bus stop, check to be sure they have safely cleared the road before you move the bus.

When children who are six years old or younger must cross the road in front of the bus after unloading, there is a great potential for a fatality. Even with the passenger mirrors, small children can be difficult for the driver to see over the hood as they cross in front of the bus. **The walking arm (crossing gate) is designed to force passengers to cross in front of the bus at a distance from the hood where they will be easier for the driver to see. However, always check to make sure no one is in front of the bus by counting the passengers as they load and unload. Counting them again when they are on the bus or safely off the roadway on each side.** Children living on the left side of the road should be away from the bus and off the roadway on the left. **If both counted totals are not the same, you must locate each missing child before moving the bus.** Be especially sure to check the passenger mirrors closely— **Frequent use of the passenger mirrors at each passenger stop cannot be overemphasized.**

School Bus Stop Law

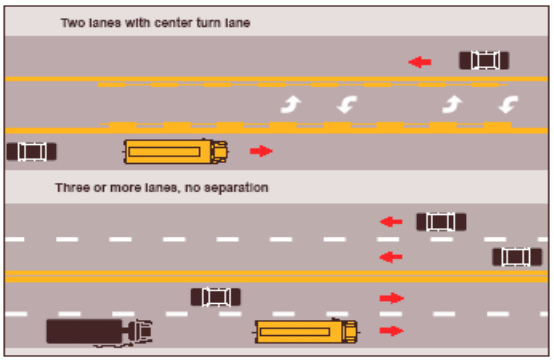
(Georgia School Bus Stop Law) 40-6-163.
(a) Except as provided in subsection (b) of this Code section, the driver of a vehicle meeting or overtaking from either direction any school bus stopped on the highway shall stop before reaching such school bus when there are in operation on the school bus the visual signals as specified in Code Sections 40-8-111 and 40-8-115, and such driver shall not proceed until the school bus resumes motion or the visual signals are no longer actuated.
(b) The driver of a vehicle upon a highway with separate roadways need not stop upon meeting or passing a school bus which is on a different roadway, or upon a controlled-access highway when the school bus is stopped in a loading zone which is a part of or adjacent to such highway and where pedestrians are not permitted to cross the roadway.
(c) Every school bus driver who observes a violation of subsection (a) of this Code section is authorized and directed to record specifically the vehicle description, license number of the offending vehicle, and time and place of occurrence on forms furnished by the Department of Public Safety. Such report shall be submitted within 15 days of the occurrence of the violation to the local law enforcement agency, which has law enforcement jurisdiction where the alleged offense occurred.



All traffic in both directions must stop.

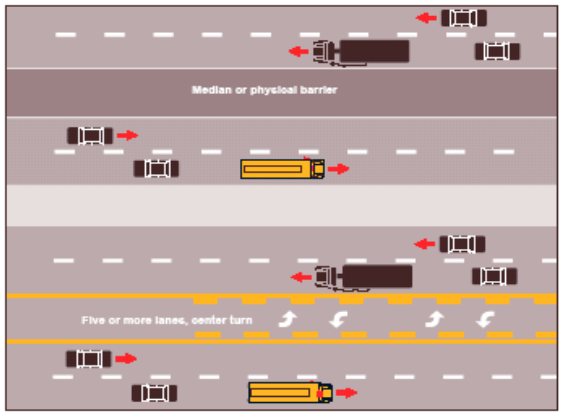
To legally oblige approaching traffic to stop, a school bus must be stopped, displaying an activated stop sign and be in the process of loading and unloading passengers. If the stop sign on the school bus is malfunctioning, do not make passenger stops; have the sign repaired before continuing. You must activate the stop sign only at passenger stops for loading and unloading passengers from the bus you are driving. Improper use of the stop sign could cause collisions, injuries and even fatalities.

If someone passes the school bus while you are loading or unloading passengers, gather as much information about the driver as you can, the ability to confidently identify the driver visually is always best. Try to estimate and note the driver's age, gender and skin tone as well as the license plate number



All traffic in both directions must stop.

of the vehicle. It is crucial also to note the date, time of day and location of the incident. Additional information such as the color and make of the vehicle also can be helpful.



Traffic moving in the opposite direction need not stop.

Violation of the school bus stop law carries the penalty of Six Points in Georgia. Drivers who violate this law greatly endanger the lives of school bus passengers. Do your part to have these dangerous drivers convicted. Report their actions to your transportation director, who will assist you in making a report to the proper law enforcement agency.

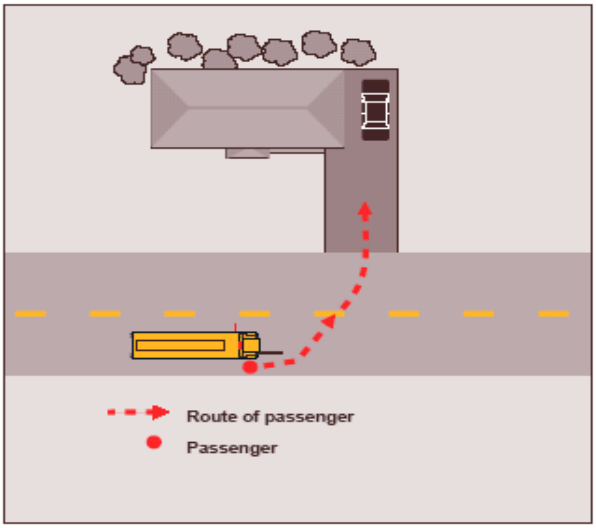
On highways with a median or a barrier, traffic going in the opposite direction from that of the bus need not stop. **The transportation director should not set up a passenger stop that requires crossing such a road to and from the left.**

Passenger Stops – General Observations

1. **Passenger stops should be made in safe places only.** Motorists approaching from both directions should have a clear view of the bus for a distance of at least 500 feet, if possible. Stops should not be made just below the crest of a hill, on a blind curve or on a steep grade. Stops should be spaced at least two-tenths of a mile apart. Although the is transportation director charged with setting routes and stops, the driver should report any problem at a stop to the transportation director.
2. Stop the bus on the main portion of the road in the extreme right-hand lane. Georgia recommends you stop 15 feet short of the passengers. Never pull to the shoulder of the road to make a passenger stop.
3. Have passengers wait until the stop-sign is out and the door is open before crossing the road.
4. Never argue with a parent at a passenger stop; ask the parent to contact the transportation director.
5. Never let a discipline problem on the bus or any other distraction interfere with checking your passenger mirrors just before leaving a passenger stop.

Never Back at a Passenger Stop

If a driver passes by a student at a passenger stop, he should not back up to pick up the student. Let the student come to the bus. If the route calls for the driver to turn around at a passenger stop, the students who get on or off at that stop should be on the bus while it is backing.

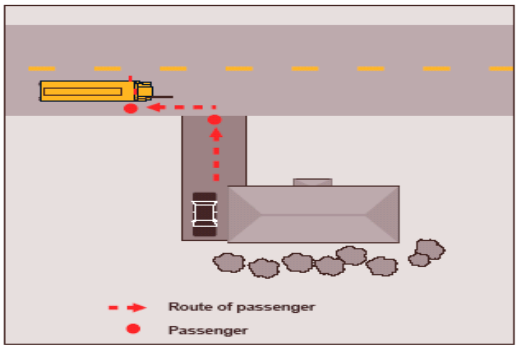


Morning and afternoon stops
for students living on the left.

Passenger Stop Procedure

Eight-Light System – Automatic Transmission

1. Check traffic.
2. Activate amber warning lights 300 feet in advance of passenger stop.
3. Make a smooth stop 15 feet short of passengers.
4. Keep firm pressure on foot brake.
5. Check traffic.
6. Open door (when safe).
7. Count, watch and recount students (loading and unloading).
8. Close door (when safe).
9. Check mirrors from left to right for students and traffic.
10. Proceed slowly while checking for students.



Morning and afternoon stops for students living on the right.

Do not release the stop sign until all students are either on the bus or well off the road on their side of the street or highway. **Always check the passenger mirrors just before leaving a passenger stop. If the driver cannot account for each passenger at a stop, he should not move the bus until he gets out and checks around and under the bus.** Students should remain seated until the bus has come to a complete stop and only then move forward to leave the bus. After passengers have boarded the bus, the driver should not move the bus until students are seated.

Loading the School Bus

The seemingly simple operation of loading and seating passengers at stops is not as simple as some may believe. The driver and transportation director should work together in assigning seats to students for several reasons:

1. Speeds up loading and unloading along the bus route.
2. Lessens confusion and delay over what seat to take.
3. Allows equal weight distribution on each side of bus.
4. Helps the driver maintain better discipline and pupil relations.
5. Aids the driver in determining who may have damaged or defaced seats, windows, etc. The driver is required to walk to the rear of the bus after each trip and check for any damage done by the passengers. When damage has been done, it should be reported to the transportation director as soon as possible.

In the afternoon, the bus driver should be at the bus to assist in proper loading and to see that pupils take their assigned seats. Loading the bus at school in the afternoon should be supervised by school authorities so that the loading operation is carried out safely and with as little confusion as possible.

Public Relations

The school bus driver accepts certain responsibilities to the community he serves in addition to his responsibility to the students who ride his bus. He should recognize that there is a very definite value in knowing the parents of the pupils who ride his bus. Parents are interested in their children and appreciate knowing the driver who is transporting them. Any interest displayed by the driver will cultivate respect for him on the part of the parents and will make the job of driving the school bus more enjoyable and successful.

The school bus driver accepts certain responsibilities to the community he serves, in addition to his responsibility to the students who ride his bus.

Refer parents to the transportation director for any request of change of stop, route or schedule. Inform them of any developments affecting the operation of the school bus, such as change of schedule and days when the bus may be late. An understanding between the parents and the driver will develop close harmony and make it possible for the driver to perform his duties more efficiently and safely.

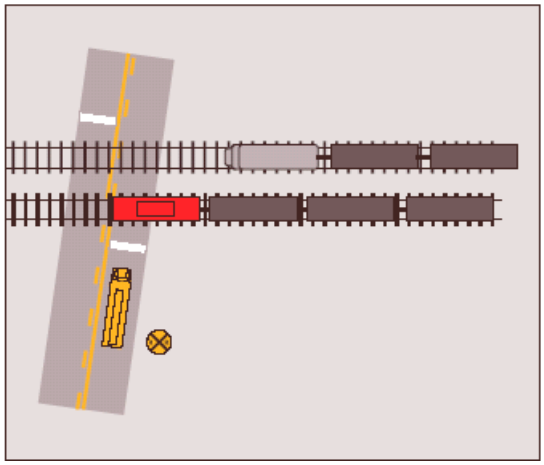
The driver's conduct, personal appearance and the appearance of the bus he drives leave an impression on parents, other motorists and the general public. That impression should always be a good one.

Railroad Crossing

School buses must stop at all railroad crossings, unless otherwise directed by a police officer or flagman.

Some tragic accidents involving school buses have occurred at railroad grade crossings. Bus drivers and passengers should follow proper procedures at all times when crossing tracks. The school bus driver should:

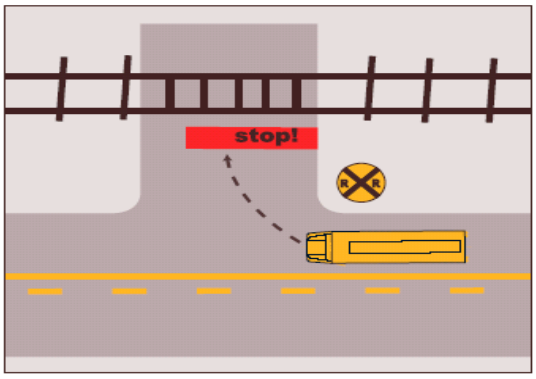
1. Check traffic and turn on hazard lights.
2. Stop at least 15 feet, but not more than 50 feet from the track.
3. Turn off heaters and defrosters, open window and door, look and listen.
4. Close door, recheck track (s), proceed if safe. After crossing tracks, turn off hazard lights, close window, turn on heaters and defrosters.
5. After crossing tracks, turn off hazard lights, close window, turn on heaters and defrosters



Federal law requires that school buses must stop at all railroad crossings within 50 feet of the nearest rail but no closer than 15 feet.

Additional Safe Driving Tips at Railroad Crossings are as follows:

- If you see or hear a train approaching, do not cross the tracks; shift to neutral, set the parking brake, and keep firm pressure on the foot brake.
- Be sure to look carefully in both directions. Look carefully at double tracks. One train might hide another.
- Never drive onto a track until you can drive all the way across.
- Accelerate enough so that the bus does not stall on the tracks.
- Never stop the bus on the track for any reason.
- When turning near a track, a turn signal should be used instead of the hazard lights.



Use extreme caution at all railroad crossings.

Every situation cannot be discussed in this handbook, but the driver should study the following examples and consider other situations that might arise. By considering problems and possible solutions before they actually occur, the driver is better prepared to take the correct action quickly.

Example: A school bus stalls on a railroad crossing; no train appears to be coming. The driver remains calm and tries to start the bus to drive it off the track. When two attempts to start the bus fail, he immediately has all the passengers evacuate the bus using the front door. (See the emergency evacuation procedures on page 40.) A responsible passenger leads the other passengers to a safe place away from the bus and takes charge of them there. The driver, taking every precaution, attempts again to move the bus off the tracks. By keeping a constant and careful watch for any approaching train, he can leave himself ample time to evacuate the bus before it is hit.

Example: If a train is approaching, do not delay. Instead, evacuate the bus immediately, using both front and rear exits. The driver should report instances of this nature to the transportation director immediately. The bus should be checked thoroughly by the mechanic and the necessary repairs made, so that the bus will not stall again.

Parking the Bus

Care should be taken to park the bus in a safe designated area not open to vandalism. In parking the bus, the driver should:

- Use the designated area.
- Parking Procedures
  1. Shift to "neutral".
  2. Set the parking brake.
  3. Turn off all equipment switches.
  4. Turn off ignition.
- Close all windows, roof hatches and doors.
- Check the interior for any damage.
- Sweep the interior of the bus.
- Use chock blocks, if provided, to help ensure the bus will not roll off.
- Report equipment defects to the transportation director.
- Report to the transportation director any hazardous conditions observed along the bus route.

TEST YOUR KNOWLEDGE

1. What is the basic speed law?
2. What is the maximum speed limit for an activity bus?
3. Must a school bus stop at every railway grade crossing?
4. Why do school buses have passengers mirrors?
5. What is the proper procedure for stopping at a railroad grade crossing?
6. What is the school bus stop law?
7. What is the proper procedure for making passenger stops?
8. When does a bus driver load or unload passengers at a turn-around point?

CHAPTER THREE: DEFENSIVE DRIVING

Six Adverse Driving Conditions Can Lead to Accidents

The Six Adverse Conditions are:

1. Light
2. Weather
3. Road
4. Traffic
5. Vehicle
6. Driver

Defensive driving is driving to prevent accidents in spite of the incorrect actions of others and adverse conditions.

1. Light Conditions

Light problems are the result of either too much or too little light. The bus driver must cut down on the amount of light where there is too much and add light where there is too little. Because it is difficult to see for any distance in either case, the driver should slow down so that he can stop within the area that he can see. When it's hard to see, at dawn or dusk or in rain or snow, you need to make it easier for the bus to be seen. If you are having trouble seeing other vehicles, other drivers will have trouble seeing you. Turn on your **low beam headlights**; high beams can bother people in the daytime as well as at night. **Do not drive with parking lights on.**

Night Driving. You are at greater risk when you drive at night. Drivers can't see hazards as quickly as in daylight, so they have less time to respond. Drivers caught by surprise are less able to avoid a crash. The problems of night driving involve several factors. Let's discuss some of these factors.

- **Vision.** People can't see as well at night or in dim light. Also, the eyes need time to adjust to dim light.

- **Glare.** Drivers can be blinded for a short time by bright light. It takes time to recover from this blindness. Most people have been temporarily blinded by camera flashes or by the high beams of an oncoming vehicle. It can take several seconds to recover from glare. Even two seconds of glare blindness can be dangerous. A vehicle going 55 mph will travel more than half the distance of a football field during that time. Don't look directly at bright lights when driving. Look at the right side of the road and reduce your speed.

When the sun is low on the horizon in the early morning or late afternoon, it can shine directly into the driver's eyes. Less light means you will not be able to see hazards as well as in daytime. Anything without lights is hard to see. Many accidents at night involve pedestrians, joggers, bicyclists and animals.

Vehicle Factors

Headlights. At night your headlights will usually be the main source of light for you to see and for others to see you. You can't see nearly as much with your headlights as you can see in the daytime. With low beams you can see ahead about 250 feet and with high beams about 350-500 feet. **Adjust your speed to keep your stopping distance within your sight distance.** This means going slow enough to be able to stop within the range of your headlights. Otherwise, by the time you see a hazard, you will not have time to stop.

Night driving can be more dangerous if you have problems with your headlights. Dirty headlights may give only half the light they should. This cuts down your ability to see, and makes it harder for others to see you. Make sure your lights are clean and working. Headlights can be out of adjustment. If they don't point in the right direction, they don't give you a good view and they can blind other drivers. Have a school bus mechanic make sure they are adjusted properly.

Use High Beams When You Can. Some drivers make the mistake of always using low beams. This seriously cuts down on their ability to see ahead. Use high beams when it is safe and legal to do so. Use them when you are not within 500 feet of an approaching vehicle. Also, don't let the inside of your bus get too bright. This makes it harder to see outside. Keep the interior light off and adjust your instrument lights as low as you can and still be able to read the gauges.

2. Weather Conditions

During the course of a school year, you will encounter bad weather conditions such as ice, snow, rain and fog. These conditions affect the bus driver's ability to see and be seen. They also make the road slippery, reducing the driver's ability to start, stop and turn. Poor driving conditions demand alertness and skillful driving. Basic rules to follow in difficult weather conditions are to reduce speed, increase following distance, and use windshield wipers, defrosters and low beam headlights.

Slippery Surfaces. It will take longer to stop and it will be harder to turn without skidding when the road is slippery. You must drive slower to be able to stop in the same distance as on a dry road. Wet roads can double stopping distance. Reduce speed by about one-third. On packed snow, reduce speed to a crawl and stop driving as soon as you can safely do so.

Just After Rain Begins. Right after it starts to rain, the water mixes with oil left on the road by vehicles. This makes the road very slippery. If the rain continues, it will wash the oil away.

Hydroplaning. In adverse weather, water or slush collects on the road. When this happens, your vehicle can hydroplane. It's like water skiing: the tires lose their contact with the road and have little or no traction. You may not be able to steer or brake. You can regain control by releasing the accelerator. This will slow your vehicle and let the wheels turn freely. If the vehicle is hydroplaning, do not use the brakes to slow down. It does not take a lot of water to cause hydroplaning. Hydroplaning can occur at speeds as low as 30 mph if there is a lot of water. Hydroplaning is more likely if tire pressure is low or the tread is worn. (The grooves in a tire carry away the water; if they aren't deep they don't work well.) Be especially careful driving through puddles. The water is often deep enough to cause hydroplaning.

Identifying Slippery Surfaces. Sometimes it's hard to know if the road is slippery. Here are some signs of slippery roads.

- Shaded Areas. Shady parts of the road will remain icy and slippery long after open areas have melted.
- Bridges. When the temperature drops, bridges will freeze before the road will. Be especially careful when the temperature is close to 32 F.
- Melting Ice. Slight melting will make ice wet. Wet ice is much more slippery than ice that is not wet.
- Black Ice. Black ice is a thin layer that is clear enough that you can see the road underneath it. It makes the road look wet. Anytime the temperature is below freezing and the road looks wet, watch out for black ice.
- Vehicle Icing. An easy way to check for ice is to open the window and feel the front of the mirror, mirror support, or antenna. If there's ice on these, the road surface is probably starting to ice up.

Driving Defensively on Slippery Surfaces.

Start Gently and Slowly. When first starting, get the feel of the road. Don't hurry. If the drive wheels begin to spin, take your foot off the accelerator.

Adjust Turning and Braking to Conditions. Make turns as gentle as possible. Don't brake any harder than necessary.

Adjust Speed to Conditions. Don't pass slower vehicles unless necessary. Go slow and watch far enough ahead to keep a steady speed. Avoid having to slow down and speed up. Take curves at slower speeds and don't brake while in curves. Be aware that as the temperature rises to the point where ice begins to melt, the road becomes even more slippery. Slow down more.

Adjust Space to Conditions. Don't drive alongside other vehicles. Keep a longer following distance. When you see a traffic jam ahead, slow down or stop to wait for it to clear. Try hard to anticipate stops early and slow down gradually.

Wet Brakes. When driving in heavy rain or deep standing water, your brakes will get wet. Water in the brakes can cause the brakes to be weak, to apply unevenly, or to grab. This can cause lack of braking power, wheel lockups, pulling to one side or the other. Avoid driving through deep puddles or flowing water if possible. If not, you should:

- **Slow down.** Place transmission in a low gear.

- **Gently put on the brakes.** This presses linings against brake drums or discs and keeps mud, silt, sand, and water from getting in.
- Increase engine RPM and cross the water while keeping light pressure on the brakes.
- When out of the water, maintain light pressure on the brakes for a short distance to heat them up and dry them out.
- **Make a test stop when safe to do so.** Check behind to make sure no one is following, then apply the brakes to be sure they work properly. If not, dry out further as described above. (Caution: do not apply too much brake pressure and accelerator at the same time or you can overheat brake drums and linings.)

Winter Driving Vehicle Checks. Make sure your vehicle is ready before driving in winter weather. You should do a regular pre-trip inspection, paying extra attention to the following items:

- Defrosting and heating equipment
- Wipers and washers
- Tires
- Tire chains
- Lights and reflectors
- Hand holds, steps and foot holds
- Windows and mirrors
- Exhaust system

Hot Weather Driving Vehicle Checks, Do a normal pre trip inspection, but pay special attention to the following items:

- Tires
- Engine Oil
- Engine Coolant

If coolant has to be added to system, let a school bus mechanic do it.

3. Road Conditions

Some roads you will travel may be broad, modern, paved roads with wide bridges, while others may be narrow, winding, dirt roads, and some with one-lane bridges. You cannot drive the same way on both kinds of roads. Adjust your speed to fit the road; if in doubt, lower your speed.

Running Off the Pavement. If you run off the pavement onto the shoulder, do not try to turn back onto the pavement immediately. Release accelerator cautiously, reducing the speed of the bus gradually; check traffic in both directions; and drive back onto the roadway at a safe place.

During an extended rainy period, road shoulders become soft and may cause drivers to lose control and have an accident. The weight of the school bus will cause the wheels to sink into the shoulder, and once stuck, the bus becomes difficult or impossible to steer or control. Bus drivers should not attempt to continue because they can lose control completely and have a serious accident - such as sliding into the ditch and tipping over.

Skid Control and Recovery. A skid happens whenever the tires lose their grip on the road. Grip is lost in one of four ways:

- ***Overbraking.*** Braking too hard and locking up the wheels.
- ***Oversteering.*** Turning the wheels more sharply than the vehicle can turn.
- ***Overacceleration.*** Supplying too much power to the drive wheels, making them spin.
- ***Driving Too Fast.*** Most serious skids result from driving too fast for road conditions. Drivers who adjust their driving to conditions don't over accelerate and don't have to over brake or over steer from too much speed.

Drive -Wheel Skids. By far the most common skid is one in which the rear wheels lose traction through excessive braking or acceleration. Skids caused by acceleration usually happen on ice or snow. They can be easily stopped by taking your foot off the accelerator. Rear wheel braking skids occur when the rear drive wheels lock. Because locked wheels have less traction than rolling

wheels, the vehicle will slide sideways in a "spin out." Do the following to correct a drive-wheel braking skid:

- ***Stop Braking.*** This will let the rear wheels roll again and keep the rear wheels from sliding any farther.
- ***Turn Quickly.*** When a vehicle begins to slide sideways, quickly steer in the direction you want the vehicle to go "down the road." You must turn the wheel quickly.
- ***Countersteer.*** As a vehicle turns back on course, it has a tendency to keep right on turning. Unless you turn the steering wheel quickly the other way, you may find yourself skidding in the opposite direction.

Front Wheel Skids. Most front-wheel skids are caused by driving too fast for conditions. Other causes include lack of tread on the front tires. In a front wheel skid, the front end tends to go in a straight line regardless of how much you turn the steering wheel. On a very slippery surface, you may not be able to steer around a curve or turn.

When a front-wheel skid occurs, the only way to stop the skid is to let the vehicle slow down. Stop turning and/or braking so hard, and slow down as quickly as possible without skidding.

Speed and Curves. Drivers must adjust their speed for curves in the road. If you take a curve too fast, two things can happen. The wheels can lose their traction and continue straight ahead, so you skid off the road. Or the wheels may keep their traction and the vehicle rolls over. A school bus is top-heavy and easier to turn over than a smaller, lower vehicle.

Slow to a safe speed before you enter a curve. Braking in a curve is dangerous because it is easier to lock the wheels and cause a skid. Slow down as needed. Don't ever exceed the posted speed limit for the curve. Accelerate slightly in the curve to help you keep control.

Dirt roads are more likely to cause a skid than paved roads. Slow down and stay to the right.

Space to the Sides. School buses are eight feet wide Buses take up an entire lane. Safe drivers will manage what little space they have. You can do this by keeping your bus centered in your lane and avoiding driving next to others.

Traveling Next to Others. There are two dangers in traveling next to other vehicles:

- Another driver may change lanes suddenly and turn into you.
- You may be trapped when you need to change lanes.

Find an open spot where you aren't near other traffic. When traffic is heavy, it may be hard to find an open spot. If you must travel near other vehicles, try to keep as much space as possible between you and them. Also, drop back or pull forward so that you are sure the other driver can see you.

Space Overhead. Hitting overhead objects is a danger. Make sure you always have overhead clearance.

- Don’t assume that the heights posted at bridges and over-passes are correct. Repaving or packed snow may have reduced the clearances since the heights were posted.
- If you doubt you have safe space to pass under an object, take another route. Warnings are often posted on low bridges or underpasses, but sometimes they are not.
- Some roads can cause a vehicle to tilt. These can be a problem clearing objects along the edge of the road, such as signs or trees. Where this is a problem, drive a little closer to the center of the road.

Mountain Driving. In mountain driving, the force of gravity plays a major role. If you have a heavy load, you will have to use lower gears and go slower to climb hills. In coming down steep hills, gravity will tend to speed you up. You must go slow enough that your brakes can hold you back without getting too hot. **If the brakes become too hot, they may start to "fade." This means that you have to apply them harder and harder to get the same stopping power.** If the brakes continue to be used hard, they can continue to fade until you can’t slow down or stop at all. If your brakes begin to fade, stop as soon as you can to let them cool. These dangers can be avoided by going slow when going downhill.

Use of Gears Going Downhill. No matter what the size of your vehicle, going down long, steep grades can cause your brakes to fail if you go too fast. Using lower gears will stop you from going too fast. Lower gears allow engine compression and friction to help slow the vehicle. This is true whether you have an automatic transmission or a manual transmission.

Be in the right gear before starting down the hill. With older vehicles, a rule for choosing gears was to use the same gear going down a hill that you would need to climb the hill. However, new vehicles have low friction parts and streamlined shapes for fuel economy. They may also have more powerful engines. This means they can go up hills in high gears and have less friction and air drag to hold them back going down hills. For that reason, drivers of modern vehicles may have to use lower gears going down a hill than would be required to go up the hill. Find out what is right for your bus.

Proper Braking. When going downhill, brakes heat up. Brake shoes or pads rub against the brake drum or disks to slow the vehicle, which creates heat. Brakes can take a lot of heat. However, brakes can fail from excessive heat if the driver slows down from too high a speed too many times or too quickly. Brakes will fade (have less stopping power) when they get very hot, and they can get to the point where they will no longer slow the vehicle.

The right way to use your brakes for long downhill grades is to go slow enough that a fairly sparing use of the brakes will keep your speed from increasing. If you go slow enough, the brakes will be able to get rid of the heat and they won't get too hot.

Forceful, intermittent braking (snubbing) is safer than light, continued braking. Letting up on the brakes from time to time will allow them to cool enough so they don't become overheated. Tests have proven this to be true. Light, continued pressure causes hot spotting and in general makes the brakes run hotter, leading to increased probability of brake fade. Light, continued pressure also causes the brakes to wear faster, which is both a safety problem and a maintenance problem. Therefore, select the right gear, go slow enough, and use forceful, intermittent braking (snubbing).

Interstate Driving and other Limited Access Highways.
A school bus with its slow top speed is a safety hazard on high-speed, heavily traveled interstates and other four lane highways where the speed limit is 55mph or faster. School buses should not be routed over such highways except in unusual circumstances and after much deliberation. If a route must include interstate driving, **use hazard lights for the entire distance and stay in the right lane. Have the passengers occupy seats as near the front of the bus as possible, so that a collision from the rear would pose less direct hazard to the passengers.**

Drawbridges
Stop at drawbridges that do not have a signal light or traffic control attendant. Stop at least 50 feet before the draw before crossing. You do not need to stop, but you must slow down to make sure it's safe, when:

- There is a traffic light showing green.
- The bridge has an attendant or traffic officer that controls traffic whenever the bridge opens.

TEST YOUR KNOWLEDGE

1. Why should you be in the right gear before starting down a hill?
2. Why do new buses use lower gears going down a hill than coming up?
3. True or false? The key to preventing brake fade is to go slow enough.
4. What effects can wet brakes have and what can you do to avoid these problems?
5. What is hydroplaning?
6. What causes skids?
7. How should you use your brakes going downhill?
8. What should you do when you run off the pavement?
9. When should you use your low-beam headlights?

Multiple Choice Questions
1. Forceful intermittent braking is synonymous with:
a) snubbing;
b) feathering;
c) fanning;
d) stabbing.

2. What should you do when you run off the pavement?
a) accelerate;
b) return to the road immediately;
c) use stab braking;
d) none of the above.

4. Traffic Conditions

The School bus interferes with traffic because of its size, slow speed, and frequent stops in the roadway. Every care should be taken to route and dispatch buses so that as little disruption as possible is caused. The less traffic tied up behind the bus, the fewer drivers there will be to get irritated, careless, and dangerous to you and your passengers. Once again, reduce speed and increase following distance when in heavy traffic.

Emergency Vehicles. Police cars, ambulances and fire trucks are considered emergency vehicles when they sound a siren. At the approach of an emergency vehicle from the front or rear, slow down, move to the right, and stop if necessary. Proceed only after the emergency vehicle has passed or until you are told to proceed by a police officer. If you are at a passenger stop when an emergency vehicle approaches, do not panic. If your passengers are still in the roadway or along the side, get them into the bus in the morning or well off the road in the afternoon before you pull in the stop sign. If you are approaching the passenger stop and can let the emergency vehicle pass without endangering the safety of your passengers, then let it pass.

First on the Scene of an Accident Involving Other Vehicles. If you are the first on the scene of an accident involving other vehicles, your first action should be to park the bus in a safe place, keep the students on the bus, and protect the scene. As soon as help arrives at the accident scene, continue your route.

Seeing Ahead.

Importance of Looking Far Enough Ahead. Because stopping or changing lanes can take a lot of distance, knowing what the traffic is doing on all sides of you is very important. You need to look well ahead to make sure you have room to make these moves safely.

How Far Ahead to Look. Most good drivers look 12 to 15 seconds ahead. That means looking ahead the distance you will travel in 12 to 15 seconds. At lower speeds, that's about one block. At highway speeds it's about a quarter of a mile. Stop too quickly or make quick lane changes. Looking 12 to 15 seconds ahead doesn't mean not paying attention to things that are closer. Good drivers shift their attention back and forth, near and far.

Traffic. Check the traffic mirrors approximately every five to eight seconds for vehicles on either side or in back of you. In an emergency, you may need to know whether you can make a quick lane change. Use your mirrors to spot advancing vehicles. There are "blind spots" that your mirrors cannot show you. Check your mirrors regularly to know where other vehicles are around you, and to see if they move into your blind spots. Avoid focusing on mirrors too long as this may cause you to miss important things happening ahead.

Communicating Your Presence. Other drivers can't know what you are going to do until you tell them. You can tell them with the horn, brake lights, turn signals, passenger stoplights, headlights and flashers.

- ***Slowing Down.*** Warn drivers behind you by slowing down. A few light taps on the brake pedal enough to flash the brake lights should warn following drivers. Use the four-way emergency flashers when you are driving very slow or are stopped. Warn other drivers in any of the following situations:
- ***Trouble Ahead.*** The size of your vehicle may make it hard for drivers behind you to see hazards ahead. If you see a hazard that will require slowing down, warn the drivers behind by flashing your brake lights.
- ***Tight Turns.*** Most drivers don't know how slow you must go to make a tight turn in a large vehicle. Give drivers behind you

warning by braking early and slowing gradually.

- ***Stopping on the Roadway.*** Give people a chance to see that you are stopping. Don't stop suddenly.

Avoid Directing Traffic. Some drivers try to help out others by signaling when it is safe to pass. You should not do this. You could cause an accident. You could be blamed and it could cost you many thousands of dollars.

When Parked at the Side of the Road. When you pull off the road and stop, such as with a breakdown, be sure to turn on the four-way flashers. This is important at night. Don't trust the taillights to give warning. Drivers have crashed into the rear of a parked vehicle because they thought it was moving normally.

Use Your Horn When Needed. Your horn can let others know you're there. It can help to avoid a crash. Use your horn when needed. However, it can startle others and could be dangerous when used unnecessarily. The horn must be audible for at least 200 feet.

TEST YOUR KNOWLEDGE

1.What are two main things to look for ahead?
2. What's your most important way to see to the sides and rear?
3. What does communicating mean in safe driving?
4. What should you do if you are the first person to arrive at the scene of an accident?

Multiple Choice Questions

1. How far ahead should you look while driving?
a) 6 -8 seconds;
b) 12 -15 seconds;
c) 18 -20 seconds;
d) as far ahead as you can see.

2. How often should you check your mirrors?
a) before each trip;
b) every 5-8 seconds;
c) every 12-15 seconds;
d) both a & b.

Importance of Seeing Hazards.

- ***What Is a Hazard?*** A hazard is any road condition or driver, bicyclist or pedestrian that is a possible danger. For example, a car in front of you is headed towards the freeway exit, but his brake lights come on and he begins braking hard. This could mean that the driver is uncertain about taking the off-ramp. He might suddenly return to the highway. If the driver of the car cuts in front of you, it is no longer just a hazard; it is an emergency.
- ***Noticing Hazards Reduces Dangers.*** You will have more time to act if you see hazards before they become emergencies. In the example above, you might make a lane change or slow down to prevent a crash if the car suddenly cuts in front of you. Seeing this hazard gives you time to check your mirrors and signal a lane change. Being prepared reduces the danger. A driver who did not see the hazard until the slow car pulled back on the highway in front of him would have to do something very suddenly. Sudden braking or a quick lane change is much more likely to lead to a crash.
- ***Learning to Notice Hazards.*** Clues will help you see hazards. The more you drive, the better you can get at seeing hazards.
- ***Impaired Drivers.*** One major hazard is an impaired driver, one who is sleepy, has had too much to drink, is on drugs, or is ill. Some clues to these drivers are:
    1. Weaving across the road or drifting from one side to another.
    2. Leaving the road (dropping right wheels onto the shoulder, or bumping across a curb in a turn).
    3. Stopping at the wrong time (stopping at a green light, or waiting for too long at a stop).
    4. Driving with an open window in cold weather.
    5. Speeding up or slowing down suddenly, driving too fast or too slow.

Steering To Avoid A Crash. Stopping is not always the safest thing to do in an emergency. When you don't have enough room to stop, you may have to steer away from what's ahead. Remember, in many cases you can turn to miss an obstacle more quickly than you can stop. (However, top-heavy vehicles such as school buses may turn over.)

- ***Keep Both Hands on the Steering Wheel.*** To turn quickly you must have a firm grip on the steering wheel with both hands. The best way to have both hands on the wheel in the event of an emergency is to keep them there all the time.

- ***Where To Steer.*** If an oncoming driver has drifted into your lane, moving to your right is best. If that driver realizes what has happened, the natural response will be to return to his or her own lane. If something is blocking your path, the best direction to steer will depend on the situation.
    1. If you have been using your mirrors, you'll know which lane is available.
    2. If the shoulder is clear, going right may be best. No one is likely to be driving on the shoulder but someone may be passing you on the left. Checking mirrors is very important.
    3. If you are blocked on both sides, a move to the right may be best. At least you won't force anyone into an opposing traffic lane and a possible head-on collision.

- ***Leaving the Road.*** In some emergencies, you may have to drive off the road. It may be less risky than facing a collision with another vehicle. Most shoulders are strong enough to support the weight of a large vehicle and, therefore, offer an available escape route. Here are some guidelines to follow if you do leave the road:

If you have to steer
to avoid an accident,
don't brake.

Avoid Braking. If possible, avoid using the brakes until your speed has dropped to about 20 mph. Then brake very gently to avoid skidding on a loose surface.
Keep One Set of Wheels on Pavement if Possible. This helps to maintain control.
Stay on the Shoulder. If the shoulder is clear, stay on it until your vehicle has come to a stop. Signal and check your mirrors before pulling back onto the road.
Returning to the Road. If you are forced to return to the road before you can stop, use the following procedure:

1. Hold the wheel tightly and reduce speed.
2. Return to the road once you have control of the bus.
3. When both front tires are on the paved surface, counter steer immediately. The two turns should be made as a single " steer-counter steer" move.
4. Returning to the road. If you are forced to return to the road before you can stop, use the following procedure:

- Hold the wheel tightly and reduce speed.
- Return to the road once you have control of the bus.
- When both front tires are on the paved surface, counter steer immediately. The two turns should be made as a single "steer-counter steer" moves.

Passing. School buses are unusually slow; school bus drivers should avoid passing other vehicles as much as possible. If a driver must pass a vehicle, he should use extreme caution. A driver usually will gain very little or nothing at all by passing, because any vehicle moving more slowly than a school bus is not likely to go very far before turning off. The driver of a school bus should never pass another school bus unless it is parked. At a multi-lane highway intersection where traffic lanes are designated for left and/or right turns, a bus may pass another bus that is waiting to make such a turn. The school bus driver is much more likely to have trouble with other vehicles passing him. He should maintain a regular check of traffic and signal his intentions early.

TEST YOUR KNOWLEDGE

1. True or false? Stopping is not always the safest thing to do in an emergency.
2. What are some advantages of going right instead of left around an obstacle?
3. What are some hazards and why is it important to be aware of them?
4. Why make emergency plans when you see a hazard?
5. What actions indicate an impaired driver?

Multiple Choice Questions
1. Where is it illegal to pass?
a) hills
b) intersections
c) railroad crossings
d) all of the above

2. If you are meeting a vehicle near the centerline, you should:
a) ride to the right;
b) reduce your speed;
c) ride off the road if necessary;
d) all of the above.

5. Vehicle Condition

The transportation director and mechanics of your county school bus garage are dedicated to keeping your bus in good running order so that it is safe to carry school children. They work year-round for our benefit. The bus driver must check his bus before each trip to make sure that it is safe to drive. If for any reason the driver feels that it is not safe to drive the bus, he should not drive it. Report the problem and have it repaired. Washing windshield, windows, headlights and reflectors is a safety precaution as well as a necessary practice in good care of equipment. Keeping the interior clean by sweeping, dusting and keeping the aisle free of obstructions promotes safe operation, good passenger discipline, and a better overall atmosphere. The windows of the bus should not be obstructed by decals or other objects.

Tire Failure. There are four important steps that drivers should take to handle a tire failure safely:

- Be aware that a tire has failed.
- Hold the steering wheel firmly.
- Stay off the brake.
- After stopping, check all the tires.

Recognizing Tire Failure. Quickly knowing you have a tire failure gives you more time to react. Having just a few seconds to remember what it is you're supposed to do can help you. The major signs of tire failure are:

1. *Sound*. The loud "bang" of a blowout is easily recognized. Because it can take a few seconds for the bus to show signs of tire failure, you might think it was some other vehicle. Any time you hear a tire blow, you may be safest to assume it was yours.
2. *Vibration.* If the vehicle thumps or vibrates heavily, it may be a sign that one of the tires has gone flat. With a rear tire, that may be the only sign you get.
3. *Feel.* If the steering feels heavy, it is probably a sign that one of the front tires has failed. Sometimes, failure of a rear tire will cause the vehicle to slide back and forth or fishtail. However, dual rear tires usually prevent this.

Any of these signs is a warning of possible tire failure. You should do the following things:

Hold the Steering Wheel Firmly. If a front tire blows out, it can twist the steering wheel out of your hand. The only way to prevent this is to keep a firm grip on the steering wheel with both hands at all times.

Stay Off the Brake. It's natural to want to brake in an emergency. However, braking when a tire has failed could cause loss of control. Unless you're about to run into something, stay off the brake until the bus has slowed down. Then brake very gently; pull off the road and stop.

Check the Tires. After you've come to a stop, get out and check all the tires. Do this even if the vehicle seems to be handling all right. If one of your dual tires fails, the only way you may know it is by getting out and looking at it.

Brake Failure. ***Brakes kept in good condition rarely fail.***

- *Air Brakes.* If there is any indication of brake failure on an air brake bus, stop the bus as soon as you can safely do so. **Do not pump air brakes.** Pumping air brakes will cause air pressure loss and less braking power.
- *Hydraulic Brakes.* Most hydraulic brake failures occur for one of two reasons:
    1. Loss of hydraulic pressure. When the system won't build up pressure, the brake pedal will feel spongy or go to the floor. Sometimes pumping the brake pedal will create enough hydraulic pressure to stop the vehicle.
    2. Brake fade on long hills.

If you have a brake failure, you can:

- ***Downshift.*** Putting the vehicle into a lower gear will help to slow the bus.
- ***Use the Parking Brake.*** On a hydraulic brake bus, the parking or emergency brake is separate from the hydraulic brake system. It can be used to slow the bus if the hydraulic system fails. However, be sure to press the release button or pull the release lever at the same time you use the emergency brake so you can adjust the brake pressure and keep the wheels from locking up.

- ***Find An Escape Route.*** While slowing the vehicle, look for an escape route, an open field, side street or escape ramp. Turning uphill is a good way to slow and stop the vehicle. Make sure the bus does not start rolling backward after you stop. Put it in low gear, apply the parking brake, and if necessary roll back into some obstacle that will stop the vehicle.

Brake Failure on Downgrades. Going slow enough and braking properly will almost always prevent brake failure on long downgrades. However, once the brakes have failed, your best prospect is an escape ramp. If there is one, there will be signs telling you about it. Use it. Ramps are usually located a few miles from the top of the downgrade. Every year, hundreds of drivers avoid injury to themselves or damage to their vehicles by using escape ramps. Some escape ramps use soft gravel that resists the movement of the vehicle and brings it to a stop. Others turn uphill, using the hill to stop the vehicle and soft gravel to hold it in place.

A driver who loses brakes going downhill should use an escape ramp if it's available. If you don't use it, your chances of having a serious crash may be much worse.

If no escape ramp is available, take the least hazardous escape route you can, such as an open field, or a side road that flattens out or turns uphill. Make the move as soon as you know your brakes don't work. The longer you wait, the faster the vehicle will go and the harder it will be to stop.

Vehicle Abuse. Do not abuse your school bus. Vehicle abuse leads to breakdowns. Breakdowns are very rare when a driver operates his bus smoothly and carefully and reports problems when they are still minor. The school bus driver should not attempt to make any repairs to the school bus nor allow any other person to do so. Only personnel authorized by the school bus garage may work on the school bus. The driver should never use the bus to push or pull any vehicle. In the event the bus is stalled, stuck or in a ditch, the driver should not allow anyone to pull or push the bus without first obtaining permission from the transportation supervisor. Exception will be made for stalling on a railroad track.

TEST YOUR KNOWLEDGE

1. What should you do in case of a brake failure?
2. What is an escape ramp?
3. If a tire blows out, you should put the brakes on hard to stop quickly. True or false?
4. How do you recognize tire failure?

6. Driver Condition

More than any other factor, the condition of the driver determines the safety of the passengers. One study showed that about 95 percent of all accidents are caused by driver error. Therefore, the driver must be mentally and physically prepared to drive every minute of every trip. The driver's general attitude toward his driving– whether he looks upon driving a school bus as a privilege and high responsibility or as a chore to be done in as little time and with as little effort as possible– will determine, more than anything else, his safety record. Some temporary conditions such as anger, worry or fear can take the driver's mind off the road. A tendency to daydream can be just as dangerous, because driving is a full-time job that requires concentration at all times.

Alcohol and drugs affect the driver and make him unfit to drive. But illness, exhaustion or weariness from hard work or lack of sleep also can rob a driver of the extra edge of alertness that is necessary for the greatest safety in driving.

If a driver feels he is not able to operate the school bus safely, the transportation director (or designated person) should appoint a substitute driver.

Alcohol and Driving. Driving under the influence of alcohol is a serious violation of state law. People who drive under the influence are involved in traffic accidents resulting in over 20,000 deaths every year. You should know:

- How alcohol works in the human body.
- How alcohol affects driving.
- Laws regarding drinking and driving.
- Legal, financial and safety risks of drinking and driving

What is a Drink? It is the alcohol that affects human performance. It doesn't make any difference whether that alcohol comes from "a couple of beers" or from two glasses of wine or two shots of liquor.

How Alcohol Works. Alcohol goes directly from the stomach into the blood stream. A drinker can control the amount of alcohol that he or she drinks. However, the drinker cannot control how fast the body gets rid of alcohol. If you drink faster than the body can rid itself of alcohol, you will have more alcohol in your body and your driving will be affected. The amount of alcohol in your body is commonly measured by the Blood Alcohol Concentration (BAC). Only time will sober a driver. Coffee and cold showers will only make a wide-awake drunk.

Alcohol and drugs affect the driver and make him unfit to drive.

What Determines Blood Alcohol Concentration? BAC is determined by the amount of alcohol you drink (more alcohol means higher BAC), how fast you drink (faster drinking means higher BAC), and your weight (a small person doesn't have to drink as much to reach the same BAC). Remember also that a BAC of 0.04 percent or greater will cost you your CDL.

AS A SCHOOL BUS DRIVER, NO AMOUNT OF ALCOHOL IS TOLERATED.

Alcohol and the Brain. Alcohol affects the brain as BAC builds up. The first part of the brain affected controls judgment and self-control. Consequently, drinkers may be fooled about the serious effect alcohol is having on them. And of course, good judgment and self-control are absolutely necessary for safe driving.

How Alcohol Affects Driving. All drivers are affected by drinking alcohol. Alcohol affects judgment, vision, coordination and reaction time. It causes serious driving errors, such as:

- Increased reaction time to hazards.
- Driving too fast or too slow.
- Driving in the wrong lane.
- Running over the curb.
- Weaving.
- Straddling lanes.
- Quick, jerky starts.
- Not signaling, failure to use lights.
- Running stop signs and red lights.
- Improper passing.

These effects mean increased chances of a crash and chances of losing your driver's license. Accident statistics show that the chance of a crash is much greater for drivers who have been drinking than for drivers who have not.

Other Drugs. Besides alcohol, other legal and illegal drugs are being used more often. Laws prohibit possession or use of many drugs while on duty. They prohibit any "controlled substance," amphetamines such as "pep pills" and "bennies," narcotics, or any other substance that can make the driver unsafe. Drugs could include a variety of prescription and over-the-counter drugs (cold medicines) that may make the driver drowsy or otherwise affect safe driving ability. However, possession and use of a drug given to a driver by a doctor is permitted if the doctor informs the driver that it will not affect safe driving ability.

Pay attention to warning labels of legitimate drugs and medicines and to doctor's orders regarding possible effects.

Stay away from illegal drugs. Don't use any drug that hides fatigue – the only cure for fatigue is rest. Alcohol can worsen the effects of other drugs. The safest rule is not to mix drugs with driving at all.

Illness. Once in a while, you may become so ill that you cannot operate a motor vehicle safely. If this happens to you, you must not drive. However, in case of an emergency you may drive to the nearest place where you can safely stop.

CHAPTER FOUR: SCHOOL BUS ACCIDENTS

Many traffic safety experts do not like to use the word "accident" and prefer to use the word "crash." They argue that very few crashes occur by chance or accident. Most drivers use the word "accident" to mean a crash: an unfortunate event resulting from unavoidable causes or a driver's carelessness, lack of awareness or inattention.

An accident in a school bus is more serious generally than one involving cars alone. The weight of the bus is greater, and the number of people involved is greater.

Georgia school bus drivers have an outstanding safety record, but each year far too many accidents occur that could and should have been avoided by alert and safe driving practices. In most motor vehicle accidents an error of one or more of the drivers involved caused the accident. They were not accidental but were caused by driver error. Accident records show that many school bus accidents are caused by bus driver error or failure to follow safety regulations.

All accidents involving a school bus must be reported regardless of the extent of damage.

Most Frequent Convictions in School Bus Accidents

1. Unsafe movement.
2. Exceeding a safe speed.
3. Improper backing.
4. Failure to yield right of way.
5. Driving on the wrong side of the road.
6. Following too closely.

Common Causes of Accidents

Objects in the Roadway

Many accidents occur when drivers attempt to dodge small animals or other objects on the highway. Such abrupt changes of direction may result in the drivers losing control of the vehicle or colliding head-on with an oncoming car. When approaching something on the road, the driver should exercise extreme caution. In some cases it may be better to hit the object when it does not involve another person than to swerve to avoid it. The driver should report all incidents of this nature to the transportation director . If an animal is struck, the driver should notify the transportation director.

Misbehavior

Misbehavior of students while the bus is in operation may result in the driver taking his attention off the road. A driver may be tempted to use the inside rearview mirror to try to correct a problem– taking his eyes off the road even though he is still moving. Such a distraction greatly increases the chances of an accident.

Check to see what discipline policy is used in your local school system. If possible, the driver should handle his own problems as they occur on the bus, going to the transportation director only when the problem continues or is severe enough to warrant stiffer measures.

Tampering with the emergency door while the bus is in motion is a form of behavior problem. If the buzzer should sound, stop smoothly, take care of the behavior problem, and shut the door. Report the incident to the principal or the transportation director.

In general, in cases of misbehavior, the driver should:
1. Select a safe place to pull off the roadway.
2. Restore order.
3. Report misbehavior to principal or the transportation director if necessary.

Physical force and putting students off the bus to walk cannot be allowed as methods of discipline. Video cameras can be installed to check on passenger behavior.

Accident Procedure

The driver must know and take steps to avoid further confusion, injury and property damage in the event of an accident:
1. Stop. Vehicles should not be moved except by permission of the investigating officer.
2. Check each passenger and render first aid as necessary.
3. Evacuate the bus only if necessary.
4. Notify proper authorities.

5. Remain with the bus to gather necessary information for the accident report, such as names. and license numbers.
6. Report all accidents regardless of injury, death, or property damage, in accordance with local policy.
7. Remember, any statement you make about the accident can be used in court. Do not discuss causes of the crash with others involved. Do not admit guilt; let the case be handled by proper authorities.

Emergency Equipment

An adequate first-aid kit and fire extinguisher should be well kept and in the proper place. The next trip may bring an accident and injuries. The bus driver should have a basic knowledge of first aid. It is recommended that the driver take a course in first aid and keep a good manual on first aid with him on the bus at all times. Knowing what not to do can be as important as knowing what to do in case of any accident.

Fires

Bus fires can cause damage and injury. Learn the causes of fires and how to prevent them. Know what to do to extinguish fires. The following are some causes of vehicle fires:

- **Accidents.** Spilled fuel.
- **Tires.** Under-inflated tires and duals that touch.
- **Electrical System.** Short circuits due to damaged insulation, loose connections.
- **Fuel.** Driver smoking, improper fueling loose fuel connections.
- **Vandalism**. Someone may set a bus afire.

Fire Prevention. Pay attention to the following:

- ***Pre-Trip Inspection.*** Make a complete inspection of the electrical, fuel, exhaust systems, and all tires.
- ***Follow Safe Procedures.*** Follow correct safety procedures for fueling the vehicle, using brakes, and other activities that can cause a fire. Never fuel a bus in an enclosed area with passengers on the bus.
- ***Monitoring.*** Check the instruments and gauges often for signs of overheating.

Fire Fighting. Knowing how to fight fires is important. Fires have been made worse by drivers who didn't know what to do. Here are some procedures to follow in case of fire:

Pull off the road. The first step is to get the vehicle off the road and stop. In doing so:

- Park in an open area, away from buildings, trees, brush and other vehicles or objects that might catch fire.
- Don't pull into a service station!
- Use your two-way radio or cellular phone if you have one to notify the police of your problem and your location.

•Keep the Fire from Spreading. Before trying to put out the fire, make sure that it doesn't spread any farther.

- With an engine fire, turn off the engine as soon as you can.
- Don't open the hood if you can avoid it.
- Shoot extinguishers through louvers, radiator or from the underside of the vehicle.

•Use the Right Fire Extinguisher. The B:C type fire extinguisher is designed to work on electrical fires and burning liquids. The fire extinguisher on your school bus should be capable of extinguishing electrical fires and burning liquids.

•Extinguish the Fire. Here are some rules to follow in putting out a fire:

- Know how the fire extinguisher works. Study the instructions printed on the extinguisher before you need it.
- When using the extinguisher, stay as far away from the fire as possible.
- Aim at the source or base of the fire, not up in the flames.
- Position yourself upwind. Let the wind carry the extinguisher to the fire rather than carrying the flames to you.
- Continue until whatever was burning has been cooled. Absence of smoke or flame does not mean the fire is completely out or cannot restart.
- Only try to extinguish a fire if you know what you are doing and it is safe to do so.

TEST YOUR KNOWLEDGE

1. Name two causes of tire fires.
2. When using your extinguisher, should you get as close as possible to the fire?
3. What school bus accidents must be reported?
4. What are some rules for fire fighting?
5. How does alcohol affect driving?
6. List some drugs that are dangerous in driving.
7. How should a driver deal with misbehavior problems?

8. How do you prevent fires?

Multiple Choice Questions

1. In cases of misbehavior, the driver should:
a) put the student off the bus;
b) correct the problem while driving;
c) stop the bus in a safe place and restore order;
d) ignore the misbehavior.

2. The following are some causes of vehicle fires:
a) Accidents. Spilled fuel.
b) Tires. Under inflated tires and duals that touch.
c) Fuel. Driver smoking.
d) all of the above.

Emergency Unloading

The driver must quickly evaluate any emergency situation and determine the immediate steps to be taken. In some instances, it may be best to keep passengers on the bus. Fire, a traffic accident, or another serious incident may require that all persons riding on a school bus leave the bus as soon as possible. To prevent injury or lessen the chance of further injuries, every rider of a school bus must be trained in emergency evacuation procedures.

The emergency door should be used only in an emergency.

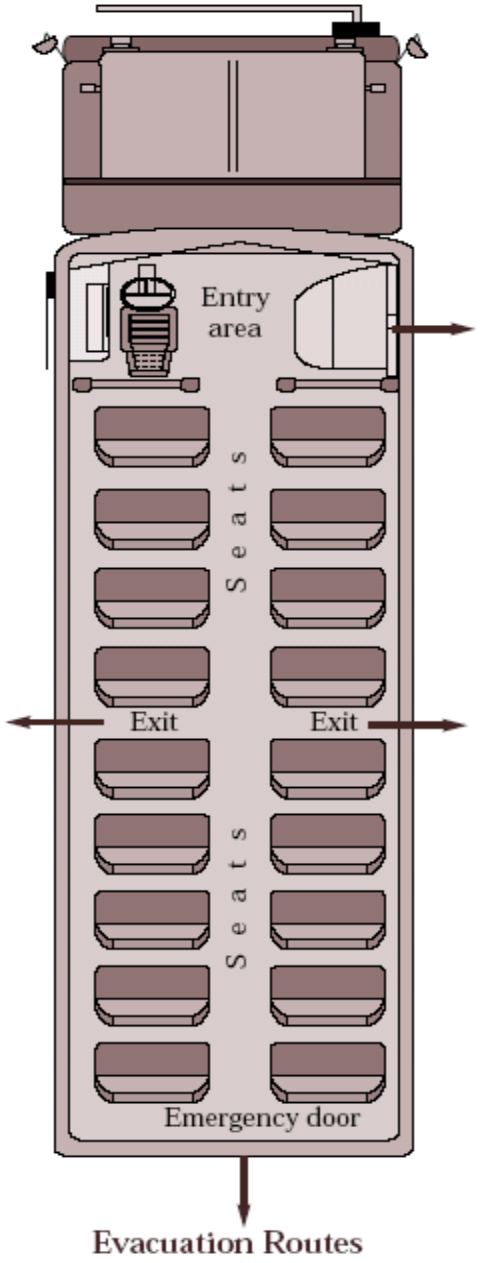
The school bus driver must unhesitatingly be obeyed in carrying out drills or a real evacuation. It is not feasible to conduct drills for an overturned bus, but knowledge of what is to be done and practice in fire drills should aid in building confidence in the driver and the passengers to do the correct thing should the need arise. Evacuation drills should be conducted at least twice each school year under the direction of school personnel.

The bus is secondary to the safety of the passengers. No attempt to save property will be made until all of the children are removed from the bus.

Suggested Evacuation Procedure

1. Park the bus as close to the shoulder of the road as possible;
    a. Turn hazard lights on;
    b. Set the parking brake;
    c. Turn engine off;
2. Stand facing the rear of the bus;
3. Give the command: "Remain seated; prepare to evacuate."
4. Turn toward the front of the bus;
5. Move backwards to the first occupied seats;
6. Starting with either the left or the right seat,
    a. Touch the shoulder of the person nearest to the aisle to indicate that the passengers in that seat are to move off;
    b. Keep the passengers in the opposite seat seated by holding the hand, palm out in a restraining gesture, until aisle is clear;
    c. Move out the passengers in the opposite seat, using the same signal;
7. Move backwards up the aisle, repeating this procedure at each seat until the bus is empty.
8. Check the bus from the very back seat to the front, making sure it is empty.
9. Have evacuating students move to a safe distance and keep them there as a group, away from any dangerous area.
10. Continue to check for students while removing the fire extinguisher or first-aid kit, if needed.
11. Call or have someone call the fire department, the garage, and the school, as necessary.

A fire at the front of the bus may make the regular entrance unusable and an alternate route of evacuation necessary. Normally the front entrance will be available, but the emergency door can be used as the primary exit. Evacuation through both doors is fastest, with the rear monitor working forward seat by seat and the driver working backward seat by seat. Newer buses also have emergency window exits in the middle of each side and an emergency door exit on the left side. The windshield and rear windows can also be pushed out to facilitate evacuation. If the bus is on its side, roof hatches can be used. Always evacuate the bus if fuel must be added enroute. Check on local policies on special education buses.



General Safety Rules

1. No given procedure can cover every type of emergency that may arise. However, the procedures given here should be followed as closely as possible.
2. Get students completely out of danger before attempting any other action.
3. Do not endanger yourself fighting a fire; follow your training to the fullest.
4. Do not allow students to re-enter the bus until the fire department has checked the bus and assured you that the fire, minor or not, has been extinguished.
5. If mechanical damage is suspected, do not reload the bus until the county garage mechanic has checked it and certified that it is safe to use.
6. If told to do so by firemen, policemen, or the mechanic, move the bus, empty of passengers, to clear traffic lanes.

Remember: A bus can be replaced; a student cannot.